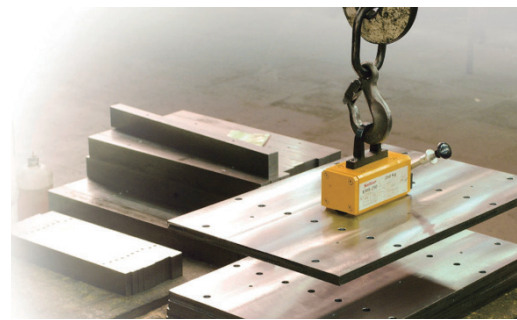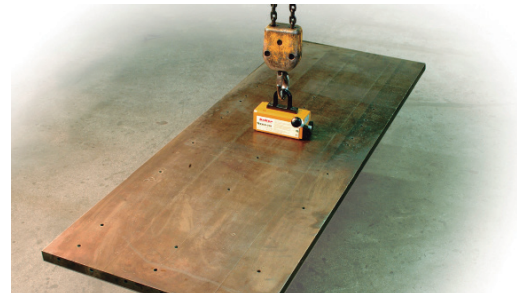# LIFTING MAGNETS

Lifting magnets are used for raising pieces of iron, both flat and cylindrical, especially in the following situations:

- For loading and unloading pieces in machine-tools.
- For storage and distribution of iron materials.
- For handling large pieces in fitting sections.

The magnetism in SELTER lifting magnets is created by permanent magnets, they are completely autonomous and do not need an electrical power supply. The great resistance to demagnetisation of the neodymium magnets used guarantee a long life for the lifting magnet under normal working conditions. In all the lifting magnet models the magnetisation and demagnetisation is achieved by moving a lever.

All models are graded for a determined nominal lifting force. This force is 3 times less than the real load detachment force (safety coefficient = 3). An individual control certificate is supplied with each lifting magnet, indicating the detachment force after trials carried out on a test-bench.

FACTORS INFLUENCING THE LIFTING FORCE OF A LIFTING MAGNET

To choose a model, apart from load weight, 4 factors influencing the lifting force must be taken into

THE CONTACT SURFACE

The magnetic flux of the lifting magnetic easily passes through iron; this is not true however with air or non-magnetic materials. If a separation (air gap) is caused between the lifting magnet and the load, the magnetic flux is weakened which also reduces the lifting force. Oxide, paint, dirt, paper or a rough finished surface produce an air gap and therefore a reduction in the lifting force.

LOAD THICKNESS

The magnetic flux of the lifting magnet needs a minimum thickness of iron to work. When the piece does not have this minimum thickness the lifting force is reduced.

LENGTH AND WIDTH OF THE LOAD

When the length or width of the load increases, the extremes curve downwards and the piece is not as flat which produces an air gap between the lifting magnet and the load, especially with thin pieces. When this happens the lifting force is reduced.

THE LOAD MATERIAL

Low carbon steels are good magnetic conductors, for example ST-37 (non- alloy steel 0.1-0.3%C). However, high carbon steels or alloys with other materials lose their magnetic properties and reduce the lifting force. Heat treatments affecting the structure of the steel also reduce lifting force. The nominal force of SELTER lifting magnets is for a low carbon steel, like ST-37.

TABLE B: FACTORS AFFECTING THE LIFTING FORCE

LOAD MATERIAL	
Non-alloy steel 0,1-0,3% C	100%
Non-alloy steel 0,4-0,5% C	90%
Nondistorting-alloy steel F-522	80-90%
Grey cast iron GG20	50-60%
Nondistorting-alloy steel tempered at 55-60 HRc	40-50%
Austenitic stainless steel, Brass, Aluminium, Copper	0%

LIFTING MAGNETS / EMX SERIES

New range of lifting magnets, for use with flat and cylindrical pieces. Bipolar conception and great penetration power, even with large air gaps.

Safety blocking lever in both magnetised and demagnetised position. Designed for magnetising and demagnetising with only one hand. Smooth setback to the demagnetised position.

The safety coefficient is 3: load detachment force is 3 times higher than the nominal force.
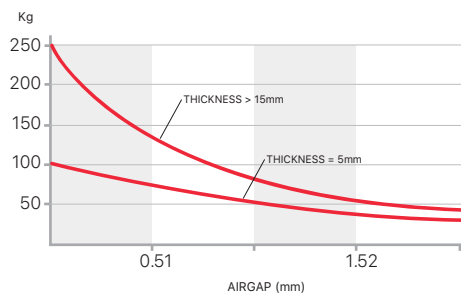
Easy to carry due to its low weight. Detachment force is between 70 and 115 times the weight

The possibility to grind the magnetic contact poles, enable the maintenance and avoid the power loss due to knocks.
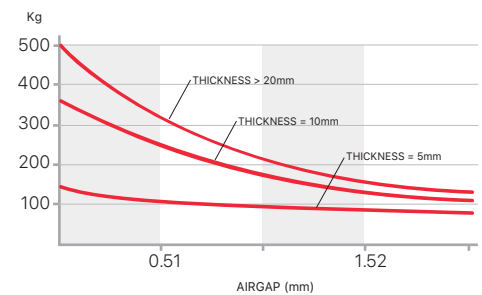
Constructed with neodymium (NdFeB) magnets which guarantee a long life for the lifting magnets under normal working conditions.
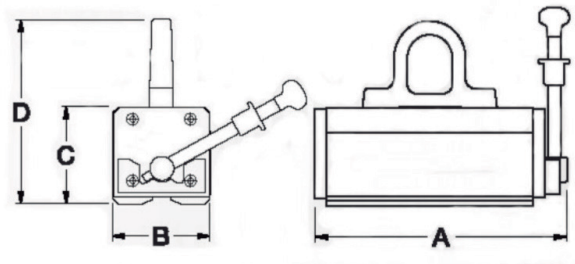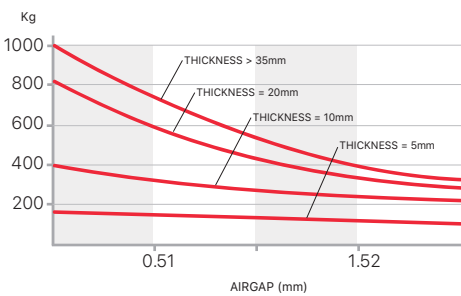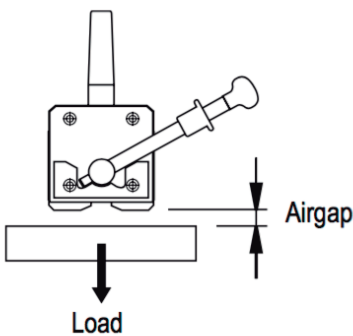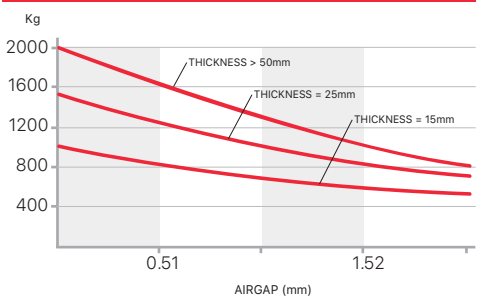
EMX - 250

EMX - 500

EMX - 1000

EMX - 2000

CODE	MODEL	LOAD FOR FLAT PCS.	LOAD FOR ROUND PCS.	DIAMETER MIN./MAX.	MIN. THICKNESS OF THE LOAD	DETACHMENT FORCE	A mm	B mm	C mm	D mm	WEIGHT Kg
16.11.002	EMX-250	250 Kg	100 Kg	40/350 mm	15 mm	800 daN	188	80	75	152	7
16.11.005	EMX-500	500 Kg	250 Kg	60/400 mm	20 mm	1600 daN	262	100	95	185	16
16.11.010	EMX-1000	1000 Kg	500 Kg	80/400 mm	35 mm	3500 daN	360	140	126	216	40
16.11.020	EMX-2000	2000 Kg	1000 Kg	150/500 mm	50 mm	6400 daN	485	180	170	299	92